This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.

Designation: F1348/F1348M – 91 (Reapproved 2023)

An American National Standard

Standard Specification for Pneumatic Rotary Descaling Machines[1]

This standard is issued under the fixed designation F1348/F1348M; the number immediately following the designation indicates the year of original adoption or, in the case of revision, the year of last revision. A number in parentheses indicates the year of last reapproval. A superscript epsilon (ε) indicates an editorial change since the last revision or reapproval.

1. Scope

1.1 This specification covers requirements for pneumatic rotary descaling machines for removal of paint, rust, scale, nonskid deck covering, and other coatings from steel and aluminum structures. These portable machines are intended for use in a marine environment, subject to salt air and spray during use and high humidity during storage.

1.2 The values stated in either inch-pound units or SI units are to be regarded separately as standard. The values stated in each system are not exact equivalents; therefore, each system shall be used independently of the other. Combining values from the two systems may result in nonconformance with the specification.

1.3 The following precautionary statement pertains to the test method portion only, Section 12, of this specification: *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety, health, and environmental practices and determine the applicability of regulatory limitations prior to use.* Specific precautionary statements are given in 17.2.1.

1.4 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ASTM Standards:*[2]

B209 Specification for Aluminum and Aluminum-Alloy Sheet and Plate (Metric) B0209_B0209M

D4417 Test Methods for Field Measurement of Surface Profile of Blast Cleaned Steel

F1166 Practice for Human Engineering Design for Marine Systems, Equipment, and Facilities

2.2 *Federal Specifications:*[3]

Fed. Std. No. 123 Marking for Shipment (Civil Agencies)

PPP-B-566 Boxes, Folding, Paperboard

PPP-B-601 Boxes, Wood, Cleated-Plywood

PPP-B-621 Boxes, Wood, Nailed and Lock-Corner

PPP-B-636 Boxes, Shipping, Fiberboard

PPP-B-640 Boxes, Fiberboard, Corrugated, Triple Wall

PPP-B-676 Boxes, Setup

2.3 *Military Specifications:*[4]

MIL-STD-129 Marking for Shipment and Storage

MIL-STD-147 Palletized Unit Loads

MIL-B-117 Bags, Sleeves and Tubing

MIL-H-775 Hose, Hose Assemblies; Rubber, Plastic, Fabric or Metal (Including Tubing); and Associated Hardware: Packaging of

MIL-L-17331 Lubricating Oil, Steam Turbine, Noncorrosive

DOD-G-24508 Grease, High Performance, Ball Roller Bearing, Continuous Run to 300°F

2.4 *ABS Publication:*[5]

ABS Rules for Building and Classing Steel Vessels

3. Classification

3.1 Descaling machines are available in two types and two classes, as follows:

3.1.1 *Type 1, Hand-Held:*

3.1.1.1 *Class A*—Inch-pound design, and

3.1.1.2 *Class B*—SI metric design.

3.1.2 *Type 2, Deck-Supported:*

3.1.2.1 *Class A*—Inch-pound design, and

3.1.2.2 *Class B*—SI metric design.

3.2 Hubs for use with descaling machines are available in four classes, as follows:

3.2.1 *Class A*—Nonmetallic, nonwoven, noncontaminating,

3.2.2 *Class B*—Peening hub for aluminum surfaces,

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[2] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.

[3] Available from U.S. Government Printing Office, Superintendent of Documents, 732 N. Capitol St., NW, Washington, DC 20401-0001, http://www.access.gpo.gov.

[4] Available from DLA Document Services, Building 4/D, 700 Robbins Ave., Philadelphia, PA 19111-5094, http://quicksearch.dla.mil.

[5] Available from American Bureau of Shipping (ABS), ABS Plaza, 16855 Northchase Dr., Houston, TX 77060, http://www.eagle.org.

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3.2.3 *Class C*—Metallic hammer type for steel surfaces, and
3.2.4 *Class D*—Metallic cutter type for steel surfaces.

4. Ordering Information

4.1 Orders for material under this specification shall include the following:
4.1.1 Title, number, and date of this specification,
4.1.2 Quantity,
4.1.3 Type and class required (see Section 3),
4.1.4 Test and inspection certification requirements, if applicable (see Section 15),
4.1.5 Test report requirements (see Section 15),
4.1.6 Technical manual requirements (see Section 16),
4.1.7 Special marking required (see 18.3),
4.1.8 Level of preservation, packaging, packing, and marking required (see Section 17 and Supplementary Requirements), and
4.1.9 Lubrication requirements of Supplementary Requirements, if applicable (see Section S3).

5. Materials and Manufacture

5.1 *Asbestos and Cadmium:*
5.1.1 Material used in the machines, or in any components, accessories, repair parts, tools, and packing and packaging shall be free of asbestos and cadmium.

5.2 *Metal Parts*—Metal parts shall be corrosion resistant or treated to resist corrosion.

6. Mechanical Properties

6.1 The machines shall be powered by an air motor and shall accept each of the rotary hubs (see 6.9).
6.1.1 *Type 1*—The Type 1 machine shall be a hand-held unit having a minimum of two handles, one of which shall house the trigger mechanism. The trigger mechanism shall be of the spring-loaded "dead man" type and shall immediately shut off air flow to the motor when released. The arrangement of the handles and trigger mechanism shall permit right- or left-handed operation with equal ease. The direction of rotation of the hubs shall tend to propel the machine in the forward direction, away from the operator. The Type 1 machine shall remove coatings to within ¼ in. [6 mm] of bulkheads, coamings, decks, and other immovable objects.
6.1.2 *Type 2*—The Type 2 machine shall be a deck supported unit with a T-shaped operating handle. The operating handle shall be adjustable for height, rigid and strong enough to operate the machine without bending, and long enough to allow any operator with the percentile body dimensions specified herein (see 6.2) to operate the machine while walking behind it in a natural walking position. The air hose connection and trigger mechanism shall be located on the T-handle. The trigger mechanism shall be of the spring-loaded "dead man" type and shall immediately shut off air flow to the motor when released. The handle shall detach or be adjustable to and lockable in the vertical position for storage. The machine shall be provided with at least two wheels used to move the machine. With the handle, air hose and each of the abrasive hubs attached, the machine shall sit level on the deck with the abrasive hubs in contact with the deck and not interfere with deck coating removal process. The machine shall easily propel itself or be propelled by the operator across the deck without overstressing the operator (see 6.2). The Type 2 machine shall remove deck coating to within 1½ in. [40 mm] of the bulkheads, coamings, and other immovable objects.

TABLE 1 Maximum Dimensions and Weights

	Type 1 Class A	Type 1 Class B	Type 2 Class A	Type 2 Class B
Length	16 in.	410 mm	36 in.	915 mm
Width	6 in.	155 mm	16 in.	410 mm
Height	12 in.	306 mm	48 in.	1220 mm
Weight	5 lb	2.3 kg	110 lb	50 kg

6.2 *Human Engineering*—The machines shall be in accordance with the human engineering criteria of Practice F1166 except where such requirements conflict with the requirements of this specification. The machines shall incorporate the maintainability requirements of Practice F1166 and shall permit safe and efficient performance of operation and maintenance by the fifth percentile female to the ninety-fifth percentile male, as defined in Practice F1166. Clearance shall be provided around each component, part or control so that an individual with aforementioned percentile body dimensions and physical capabilities can safely operate, maintain, remove, or replace any item using normally available tools and test equipment. The controls required for operation and maintenance shall be in accordance with Practice F1166 and shall not require operator forces to exceed the strength limitations listed therein.

6.3 *Interchangeability*—Component parts and assemblies peculiar to each type and class of machine from any one manufacturer shall be fully interchangeable. Such interchangeability shall not require any alterations or modifications.

6.4 *Dimensions and Weight*—The machines, fully assembled with guards; debris collector attachment (less hoses and collection container); and with operating handles (Type 2) locked in its operating position; fully lubricated and ready in all aspects for operation (less air hose and filter, evaporator and lubricator attachments) shall not exceed the maximum dimensions and weight shown in Table 1.

6.5 *Air Motor*—The machines shall be driven by air motors that operate on the minimum air supplies as shown in Table 2.

6.6 *Guards*—Machines of both Type 1 and Type 2 shall be provided with guards that protect the operator from inadvertent contact with moving parts and prevent uncontrolled scattering of chips or scale removed by the machine. These guards shall not interfere with the performance of the machine throughout the machine's useful life, unduly decrease any of the hub's physical dimensions or wear, or interfere with changing of the hubs. The guards/rotary hub containment shall be constructed to accommodate a debris collection system.

6.7 *Air Connections*—Air connections for both Type 1 and Type 2 machines shall be of the quick disconnect type. The locations of the air connection shall be such that the hose does not interfere with operation of the machine or the operator. The inside diameter of the connections shall be in accordance with Table 3.

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